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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/845,255	05/01/2001	Tomohisa Yamamoto	108421-00013	2846

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EXAMINER
RUDE, TIMOTHY L

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 07/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/845,255	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	Timothy L Rude	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claims

1. Claim 1 is amended. Claim 16 is added.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al (Park) USPAT 6,372,354 B1 in view of Leenders et al (Leenders) USPAT 6,366,013 B1.

As to claims 1 and 16, Park discloses in Figure 1 an anti-static film for a display (materials embedded in hardcoat layer, col. 6, lines 19-23), comprising a hardcoat layer, 11, provided on the surface of a transparent substrate, 10, wherein said hard coat layer contains at least polymer (Applicant's resin) (col. 4, lines 6-11), Antimony Tin Oxide (Applicant's conductive material) (col. 4, lines 42-46), and silica (Applicant's low refractive index material) (col. 6, lines 10-23), surface electric resistance thereof is 1.7 X 10^6 Ω/□ to 2.3 X 10^6 Ω/□ (col. 7, lines 9-16) (less than Applicant's 1.0 X 10^{11} Ω/□ or

less), and the 5-degree specular reflectance (col. 7, lines 31-38) is 4.0% or less (Figure 2).

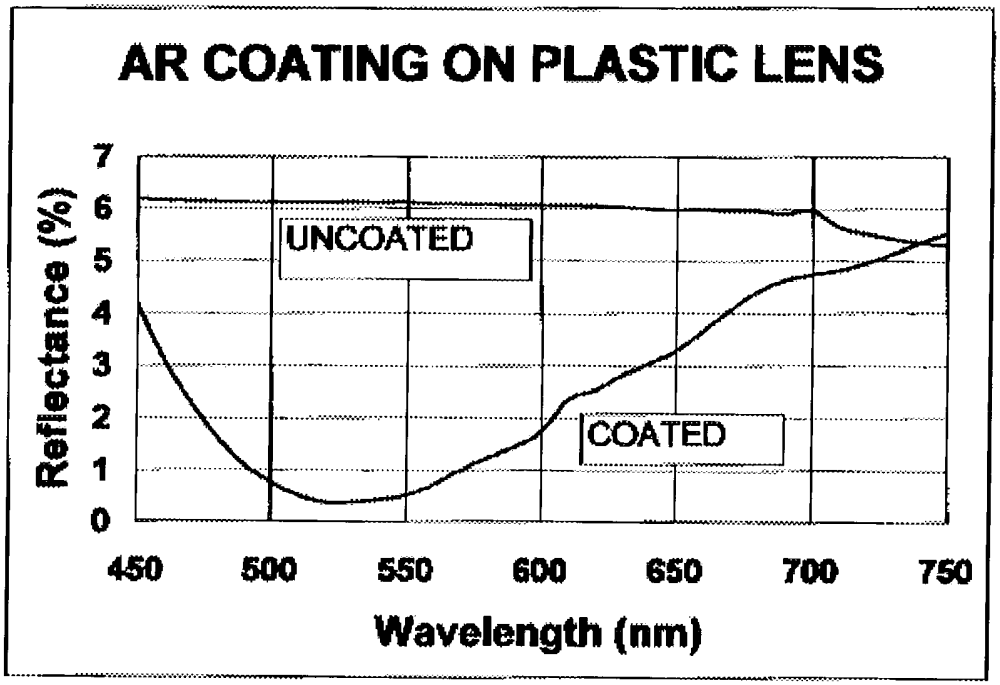

FIG. 2

Park does not explicitly disclose the exact range of surface electrical resistance and the exact range of Y value obtained by 5 degree specular reflectance. However, the ranges taught by Park, above, are within the respective claimed ranges. Therefore the narrower ranges of Park read on the claimed ranges for surface electrical resistance and 5 degree specular reflectance.

Park does not explicitly disclose use of a hard coat comprising a UV curable acrylic resin.

Leenders teaches the formation of an anti-reflective coating (Abstract) and a hard coat layer comprising UV curable Acrylate (Applicant's UV curable acrylic resin) (col. 10, lines 22-27) to improve the indentation strength of the surface (col. 2, lines 23-37).

Leenders is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use hard coat of UV curable acrylic resin to improve the indentation strength of the surface.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Park with the hard coat of UV curable acrylic resin of Leenders to improve the indentation strength of the surface.

As to claim 2, Park in view of Leenders discloses an anti-static film for a display, in accordance with claim 1.

Park in view of Leenders does not explicitly disclose a film, wherein said low refractive index material has a particle size of 5 to 500 nm.

Park discloses a film, wherein said low refractive index material has a particle size that is sub-micron (because particle size must necessarily be less than or equal to the thickness of the applied sub-micron thick particle layer) (col. 4, lines 30-34) Park also discloses a conductive particle size of 120 to 145 nanometers (within Applicant's 5 to 500 nm), with the reason, suggestion, or motivation of producing suitable films without producing unwanted streaking or unwanted opaqueness (col. 4, lines 52-54).

Therefore it would have been obvious to one having ordinary skill in the art of liquid crystal displays to combine the use conductive and low refractive index material particles, sized within the claimed range of 5 to 500 nanometers, with the hardcoat layer of Park in view of Leenders.

As to claim 3, Park discloses an anti-static film for a display, in accordance with claim 1, wherein said low refractive index material is contained at 1.4 wt. % to 2.3 wt. % (Applicant's 15 to 200 weight parts to 100 weight parts) of said conductive material (Table 1, col. 8, lines 20-28).

As to claim 4, Park discloses an anti-static film for a display, in accordance with claim 1, wherein said low refractive index material is silica sol (col. 6, lines 7-10).

As to claim 5, Park discloses an anti-static film for a display, in accordance with claim 2, wherein said low refractive index material is silica sol (col. 6, lines 7-10).

As to claim 6, Park discloses an anti-static film for a display, in accordance with claim 3, wherein said low refractive index material is silica sol (col. 6, lines 7-10).

As to claim 7, Park discloses an anti-static film for a display, in accordance with claim 1, wherein said conductive material is metal oxide particles (col. 4, lines 42-45).

As to claim 8, Park discloses an anti-static film for a display, in accordance with claim 2, wherein said conductive material is metal oxide particles (col. 4, lines 42-45).

As to claim 9, Park discloses an anti-static film for a display, in accordance with claim 3, wherein said conductive material is metal oxide particles (col. 4, lines 42-45).

As to claim 10, Park discloses an anti-static film for a display, in accordance with claim 4, wherein said conductive material is metal oxide particles (col. 4, lines 42-45).

3. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Leenders, as applied to claims 1-10 and 16 above, in view of Hahn et al (Hahn) USPAT 4,422,721.

As to claims 11-15, Park in view of Leenders discloses an anti-static film for a display, in accordance with claims 1, 2, 4, and 7. Park also discloses the use of adhesion-promoting coatings as prior art (col. 2, lines 34-46) to promote adhesion of the anti-reflection coating.

Park in view of Leenders does not explicitly disclose a film, wherein at least two layers of said layers are colored, and said colors are made to be achromatic by mixing.

Hahn teaches the use of layers, wherein at least two layers of said layers are colored, to compensate for the indium tin oxide layer so as to maintain achromatic low

reflectivity in the visible spectrum (Applicant's said colors are made to be achromatic by mixing) (col. 7, lines 22-37).

Hahn is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to make at least two layers of said layers colored, and said colors are made to be achromatic by mixing so as to maintain achromatic low reflectivity in the visible spectrum.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Park in view of Leenders with the additional colored layer(s) of Hahn to compensate for the color of the conductive material in order to maintain achromatic low reflectivity.

Response to Arguments

4. Applicant's arguments filed on 13 May 2003 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are as follows:

(1) Regarding claims 1-10, Park fails to teach surface electric resistance thereof of 1.0×10^{11} Ω/□ or less, and the 5-degree specular reflectance of 4.0% or less.

(2) Contrary to the present invention, Park discloses a first layer of ITO and a second layer of SiO_2 rather than a monolayer structure.

(3) Park does not disclose UV curable resin.

(4) Office Action fails to provide motivation to use claimed ranges for surface electric resistance and specular reflectance.

(5) Regarding claim 3, it is unclear what percentage of conductive material is disclosed by Park and the mixing ratios are unclear.

(6) Regarding claims 11-15, Park in view of Han does not disclose an adhesion layer provided on a surface, in which a hard coat is not provided, werein at least two layers are colored, and said colors are made to be achromatic by mixing.

Examiner's responses to Applicant's ONLY arguments are as follows:

(1) It is respectfully pointed out that Park discloses a surface electric resistance of 1.7×10^6 Ω/□ to 2.3×10^6 Ω/□ (col. 7, lines 9-16) (less than Applicant's 1.0×10^{11} Ω/□ or less), with a minimum 5-degree specular reflectance (col. 7, lines 31-38) is about 0.3% and an overall 5-degree specular reflectance less than 4.0% as averaged over the visible light spectrum (Figure 2). This is considered better performance than the claimed invention per Applicant's enabling disclosure (specification, page 5 lines 9, 10, and 19-22).

(2) It is respectfully pointed out that Park discloses reacting the layers which causes the SiO_2 gels to contract the ITO layer vertically and horizontally, resulting in a compact microstructure of a composite that is subsequently dried at the low temperature of 50 to 100 degrees C (col. 5, line 60 through col. 6, line 5). Please note that the finished structure of Park in view of Leenders reads on the device claims as broadly written despite differences in the steps of the method of making.

(3) It is respectfully pointed out that Leenders, now applied, teaches the use of UV curable acrylic resin with motivation to combine, per rejections above.

(4) It is respectfully pointed out that Park discloses narrower ranges than are claimed and the narrower ranges fall entirely within the ranges as claimed which renders motivation moot. Please note that a prior art teaching of a narrower range that falls entirely within the claimed range reads on the claimed invention.

(5) It is respectfully pointed out that the percentage of conductive material is given in the first column of table 1 in column 8 of Park. Also note coating thickness (col. 8, lines 9-20) (Applicant's mixing ratio). Please note that Applicant's claimed mixing ratio is easily derived from the percentage and thickness values of Park.

(6) It is respectfully pointed out that Park discloses the use of adhesion-promoting coatings as prior art (col. 2, lines 34-46) to promote adhesion of the anti-reflection coating.

Park does not explicitly disclose a film, wherein at least two layers of said layers are colored, and said colors are made to be achromatic by mixing.

Hahn teaches the use of layers, wherein at least two layers of said layers are colored, to compensate for the indium tin oxide layer so as to maintain achromatic low reflectivity in the visible spectrum (Applicant's said colors are made to be achromatic by mixing) (col. 7, lines 22-37). Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the films of Park with the additional colored layer of Hahn to compensate for the color of the

conductive material in order to maintain achromatic low reflectivity (col. 7, lines 22-37), per rejection above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (703) 305-0418. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

Timothy L Rude
Examiner
Art Unit 2871

TLR
June 25, 2003

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800